



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,325	04/12/2004	Jae Sung Lim	SEMIRE-PA-US-11	2573

7590
OBER / KALER
c/o Royal W. Craig
120 East Baltimore Street
Baltimore, MD 21202

09/29/2008

EXAMINER

LU, ZHIYU

ART UNIT	PAPER NUMBER
----------	--------------

2618

MAIL DATE	DELIVERY MODE
-----------	---------------

09/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/822,325	Applicant(s) LIM ET AL.	
	Examiner ZHIYU LU	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-14 and 16-19 is/are rejected.
- 7) ☒ Claim(s) 4 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 07/14/2008 have been fully considered but they are not persuasive.

Regarding amended claims 1, 6 and 17, applicants argued that Fujioka fails to disclose allocating or transmitting a SIT to the slave or transmitting of an active member address according to the service sequence to the slave. Fujioka further fails to disclose the self waking up of the slave at the SIT indicated by the transmitted SIT table.

However, the Examiner does not agree. First of all, the filed specification only discloses allocating a SIT to a slave going into sniff mode. It does not necessarily means transmitting the SIT to the slave. It could all just be done within the memory of the master. Secondly, the argued limitation is disclosed by 10.8.2 Sniff mode in Bluetooth Specification version 1.1, which means both the sniff interval SIT and corresponding active member address AM_ADDR, are known by both the master and the slave through a sniff command inherently.

Thus, the rejections are proper and maintained.

2. Applicant's arguments with respect to claim 17-19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

Art Unit: 2618

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1 and 6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 1 and 6, applicants claimed “self waking-up of a slave from sniff mode” in both claims and “transmitting a sniff interval time” in claim 6. However, there are no supports found in filed specification. According to paragraph 0040 of filed specification, there is no support for allocating the SIT to slaves that intend to enter sniff mode. But it does not necessarily mean that the master transmitting the SIT to the slaves and the slaves wake up by themselves.

For examination purpose, the Examiner takes the interpretation of filed specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073) in view of Hayashi et al. (US2003/0021288).

Art Unit: 2618

Regarding claim 1, Fujioka teaches a method for communicating with seven or more terminals in a Bluetooth system having a master and a plurality of slaves, the method comprising the steps of:

checking that an active member address remains available to be allocated to a new slave such that the master establishes a communication connection with the slave (inherent in Bluetooth protocol such as access request);

in case an active member address remains available, allocating the remaining active member address to the slave (inherent in establishing Bluetooth connection with master);

allocating and transmitting a sniff interval time and an active member address to each of the slaves according to the service sequence (FIFO), and converting the slave allocated and given the sniff interval time (T_c) and the active member address to be in a sniff mode (paragraphs 0073, 0076-0079); and

self waking-up (inherent in Bluetooth sniff mode protocol) of a slave from sniff mode at the sniff interval time and using the active member address to complete the communication with the active master and to return a use right of the active member address (paragraphs 0073, 0076-0079).

The difference between park mode and sniff mode is that slaves in park mode remain synchronized with master. In view, both park mode and sniff mode are considered inactive states for slaves. Note that in the embodiments of Fujioka, active member address equipped slaves (including slaves in active mode and sniff mode) are swapped with parking slaves according to predetermined service sequence based on FIFO record and received access request messages stored in memory.

Art Unit: 2618

But, Fujioka does not expressly disclose in case no active member address remains available, calculating a service delay time and comparing the calculated delay time with a predetermined reference value; in case the service delay time is larger than the predetermined reference value, refusing a call acceptance, and in case the service delay time is smaller than the predetermined reference value, converting a slave that has requested the call to sniff mode and determining a service sequence with respect to a predetermined reference according to the number of the slave calculated at a pre-scheduling duration;

Hayashi et al. teach a dynamic call connection scheme where an average delay time (obviously calculated) is compared with a predetermined threshold when a new call request is received, wherein the call is rejected if delay time is longer than the predetermined threshold (Fig. 8, paragraph 0097). So, it would have been obvious to one ordinary skill in the art to recognize that the same scheme can be applied in Bluetooth connection wherein the delay time can be calculated based on queued services and/or access requests in memory of Fujioka.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate calculating service delay to determine whether to accept a new call connection taught by Hayashi et al. into the method of Fujioka, in order to limit increase in service delay.

Regarding claim 2, Fujioka and Hayashi et al. teach the limitation of claim 1.

Fujioka teaches wherein the service sequence is determined in a sequence of receiving an access request message (paragraphs 0073, 0076-0079).

Art Unit: 2618

Regarding claim 3, Fujioka and Hayashi et al. teach the limitation of claim 1

Fujioka teaches wherein data transmission between the master and the slave is such that until the slave given the active member address completes the data transmission, it is activated after the sniff interval time so as to repetitively transmit data (inherent, where it is known Bluetooth transmits data repetitively in TDD scheme).

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073) in view of Hayashi et al. (US2003/0021288) and Aiello et al. (US2002/0018458)

Regarding claim 5, Fujioka and Hayashi et al. teach the limitation of claim 1.

But, Fujioka and Hayashi et al. do not expressly disclose wherein the slave having the service sequence determined is established in the frame unit for data transmission.

Aiello et al. teach using TDMA scheme in Bluetooth (Fig. 4, paragraphs 0022, 0063, 0073), where obviously the slave having the service sequence determined is established in the frame unit for data transmission.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate utilizing TDMA in Bluetooth taught by Aiello et al. into the method of Fujioka, in order to efficiently provide each slave at least one transmit time slot for data communication.

Art Unit: 2618

6. Claims 6, 10-11, 13-14, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073)

Regarding claim 6, Fujioka anticipates a method for communicating with seven or more terminals in a Bluetooth system having a master and a plurality of slaves (Fig. 1), the method comprising the steps of:

transmitting an access request message from a parked slave to the master so as to establish a communication connection therebetween (paragraph 0076);

receiving the access request message so as to calculate the number of the parked slave and determine a service sequence with respect to a predetermined reference (paragraph 0073, where obviously a FIFO scheme is applied to determine service sequence);

allocating and transmitting a sniff interval time and an active member address (inherent in Bluetooth sniff mode protocol) according to the service sequence so as to establish the communication connection, and maintaining a sleep state, by a non-connected slave, while a sniff mode is maintained (Figs. 18 & 20, paragraphs 0076-0079); and

self waking-up (inherent in Bluetooth sniff mode protocol) the slave of the sniff mode at the sniff interval time such that the active member address is used to complete data transmission with the master and return to the sniff mode (Figs. 18 & 20, paragraphs 0076-0079, where Fig. 20 is about completing data transmission before turn into parking mode).

Note that in the embodiments of Fujioka, active member address equipped slaves (including slaves in active mode and sniff mode) are swapped with parking slaves according to predetermined service sequence based on FIFO record and received access request messages stored in memory. Thus, applicants' method is obviously taught by Fujioka.

Regarding claim 17, Fujioka teaches an apparatus (1 of Fig. 1) for communicating with seven or more terminals (2-11 of Fig. 1) in a Bluetooth system having a master and a plurality of slaves, the apparatus comprising:

a transceiver for transmitting and receiving a signal between the master and the slave (inherent in Bluetooth unit to transmit and receive);

a parking mode controller (inherent in Bluetooth unit to deal with park mode) for analyzing the signal received from the transceiver so as to control a number of a parked slave (e.g. parked member address as numbered), a data type and a number of packet to be transmitted by each slave (e.g. determining whether it is a access request packet and repeated access request packet), and a parameter necessary for a parking mode (e.g. access request address);

a pre-scheduling unit for analyzing the signal received from the transceiver and determining a service sequence, a sniff interval time (inherent in options to determine a sniff interval), and an active member address to be used by a slave for communication with the master after the wake-up during the sniff interval time (paragraph 0073, where memory unit works logic circuit to assign service sequence and active member address); and

a controller for controlling the parking mode controller, the transceiver and the pre-scheduling unit to provide each slave with the sniff interval time and an active member address to be utilized by the slave that has woken up during the sniff interval time to perform the communication according to the service sequence (inherent in Bluetooth sniff mode protocol).

Note that in the embodiments of Fujioka, active member address equipped slaves (including slaves in active mode and sniff mode) are swapped with parking slaves according to

Art Unit: 2618

predetermined service sequence based on FIFO record and received access request messages stored in memory. Thus, applicants' method is obviously taught by Fujioka.

Regarding claim 10, Fujioka teaches the limitation of claim 6.

Fujioka teaches wherein the service sequence is determined prioritizing the slave not completing the communication for a beacon interval duration earlier (paragraphs 0073, 0076-0079, where obviously slaves are prioritized before beacon interval).

Regarding claim 11, Fujioka teaches the limitation of claim 6.

Fujioka teaches wherein the non-connection slave is given a sniff interval time and an active member address at a pre-scheduling duration (inherent, it is the definition of sniff mode).

Regarding claim 13, Fujioka teaches the limitation of claim 6.

Fujioka teaches wherein the service sequence is determined in a sequence of receiving the access request message (paragraphs 0073, 0076, FIFO).

Regarding claim 14, Fujioka teaches the limitation of claim 6.

Fujioka wherein data transmission between the master and the slave is such that until the slave given the active member address completes the data transmission, it is activated after the sniff interval time so as to repetitively transmit data (inherent, where it is known Bluetooth transmits data repetitively in TDD scheme).

Art Unit: 2618

Regarding claim 19, Fujioka teaches the limitation of claim 17.

Fujioka teaches wherein the parking mode controller controls parameters of the number of a beacon slot, the number of an access window, and the number of a slot per a window (inherent in Bluetooth park mode).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073) in view of Karaoguz (US2002/0159544).

Regarding claim 7, Fujioka teaches the limitation of claim 6.

But, Fujioka does not expressly disclose wherein the step of transmitting the access request message from the parked slave is performed by a slotted collision sense multiple access (CSMA) way.

Karaoguz teaches utilizing CSMA in access request (paragraph 0064).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using CSMA in access request taught by Karaoguz into the method of Fujioka, in order to avoid congestion.

8. Claims 8-9, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073) in view of Aiello et al. (US2002/0018458).

Regarding claim 8, Fujioka teaches the limitation of claim 6.

Art Unit: 2618

But, Fujioka do not expressly disclose wherein the step of transmitting the access request message from the parked slave is performed by a time division multiple access way.

However, it is known that Bluetooth applies TDD, which is an application of time-division multiplexing.

Aiello et al. teach using TDMA scheme in Bluetooth (paragraphs 0022, 0063, 0073), where obviously the step of transmitting the access request message from the parked slave is performed by a time division multiple access way.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate utilizing TDMA in Bluetooth taught by Aiello et al. into the method of Fujioka, in order to efficiently provide each parked slave at least one transmit time slot for data communication.

Regarding claim 9, Fujioka teaches the limitation of claim 6.

Fujioka and Aiello teach wherein data transmission between the master and the slave is such that un-parked slaves are all established in a frame and data is transmitted in a frame unit as explained in response to claim 12 below.

Regarding claim 12, Fujioka teaches the limitation of claim 6.

But Fujioka does not expressly disclose wherein data transmission between the master and the slave is such that after all of the slaves transmitting the access request message are un-parked, the un-parked slaves are established in the frame and all of the slaves transmit data by one time.

Art Unit: 2618

It is known that in Bluetooth multiple slaves can be un-parked simultaneously (inherent in Bluetooth).

Aiello et al. teach using TDMA scheme in Bluetooth (Fig. 4, paragraphs 0022, 0063, 0073), where obviously the un-parked slaves are established in the frame and all of the slaves transmit data by one time after all of the slaves transmitting the access request message are un-parked. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate utilizing TDMA in Bluetooth taught by Aiello et al. into the method of Fujioka, in order to efficiently provide each slave at least one transmit time slot for data communication.

Regarding claim 16, Fujioka teaches the limitation of claim 6

Fujioka and Aiello et al. teach wherein the slave having the service sequence determined is established in the frame unit for data transmission (sequence in TDMA) as explained in response to claim 12 above.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073) in view of Shorey et al. (US Patent#6807159).

Regarding claim 18, Fujioka teaches the limitation of claim 17.

But, Fujioka does not expressly disclose wherein the pre-scheduling unit automatically varies a packet depending on a data throughput communicating with the slave.

Art Unit: 2618

Shorey et al. teach wherein the pre-scheduling unit automatically varies a packet depending on a data throughput communicating with the slave (abstract, column 2 lines 45-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate utilizing adaptive polling scheme taught by Shorey et al. into the apparatus of Fujioka, in order to optimize power consumption while maintaining quality of service.

Allowable Subject Matter

10. Claims 4 and 15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

Art Unit: 2618

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZHIYU LU whose telephone number is (571)272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Zhiyu Lu
Examiner
Art Unit 2618

/Nay A. Maung/
Supervisory Patent Examiner, Art Unit
2618

/Z. L./
Examiner, Art Unit 2618
September 20, 2008

Application/Control Number: 10/822,325

Page 15

Art Unit: 2618